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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/050,458	01/16/2002	Khoi A. Phan	G0208	6525

7590

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Himanshu S. Amin
Amin & Turocy, LLP
National City Center
1900 E. 9th Street, 24th Floor
Cleveland, OH 44114

EXAMINER

NGUYEN, DANNY

ART UNIT

PAPER NUMBER

2836

DATE MAILED: 07/16/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/050,458

Applicant(s)

PHAN ET AL.

Examiner

Danny Nguyen

Art Unit

2836

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 January 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 29 and 30 is/are allowed.
- 6) ☒ Claim(s) 1-11, 14, 15, 17-20, 23 and 25-28 is/are rejected.
- 7) ☒ Claim(s) 12, 13, 16, 21, 22 and 24 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 25-28 are rejected under 35 U.S.C. 102(b) as being anticipated by Rose et al. (USPN 4,675,530).

Regarding to claims 25-27, Rose et al. disclose a method of controlling static charge comprises establishing a base value (col. 5, lines 41-43) for a target device (12), establishing a threshold value (below 10 volts) for the target device (12), establishing an acceptable value (10 volts, col. 2, lines 34-35), monitoring (sensor 30) a static charge on the surface of the wafer (12), on the static charge exceeding the threshold value, initiating a corrective action (control system 50), continuing to monitor the static charge and halting the correction action when the monitored static charge decreasing the acceptable level(col. 7, lines 54-57).

Regarding to claim 28, Rose et al. disclose determining an acceptable value (10 volts) based on the reducing the time required for the corrective action while reducing the static charge of the target device (12) (col. 5, lines 53-57).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-3, 5, 6, 9-11, 15, 17, 18, 20, 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lewis et al. (USPN 5,308,447) in view of Chao et al (USPN 6,162,565) and in view of Rose et al.

Regarding to claims 1, 2, 9, 10, 15, 19, Lewis et al. disclose a system (fig. 1) comprises a cup holder (11) to hold a target device (19), a solution dispenser (such as rinse solution contained in tank 29) positioned above the device (19) to dispense a solution on the device (19), controller (55) coupled to the rinse solution dispenser (35) control dispensing of the antistatic solution. Lewis et al. do not explicitly disclose the rinse solution contained in tank 35 is an antistatic solution. Chao et al. disclose a rinse solution which use an antistatic liquid (such as water and acid, see fig. 1). Therefore a person having ordinary skill in the art would have been to replace the rinse solution of Lewis et al. with antistatic rinse solution of Chao et al. in order to prevent the build up of cerium-containing deposits. Lewis et al. and Chao et al. do not disclose a charge

Art Unit: 2836

sensor having an arm. Rose et al. discloses a charge sensor (30) having an arm (shown in fig. 1). It would have been obvious to one having skill in the art to modify the wafer holder of Lewis et al and Chao et al with a charge sensor having an arm as taught by Rose et al. in order to monitor the charge build-up on the surface of the wafer (Rose et al., col. 2, lines 59-68).

Regarding to claims 3, Lewis et al. disclose the target device is a mark (col. 1, lines 31-33).

Regarding to claims 5 and 6, Lewis et al. disclose the antistatic solution dispenser (such as 29 and 35) dispenses resist and developer (col. 3, lines 60-64).

Regarding to claim 11. Lewis et al. disclose the antistatic solution comprises a first solution (rinse solution stored in the container 35) and a second solution (developer solution stored in the container 29).

Regarding to claims 17 and 18, Lewis et al. and Chao et al do not disclose the charge sensor monitors the entire surface. Rose et al. discloses a charge sensor (30) (shown in fig. 1) senses the entire surface of the wafer 12. It would have been obvious to one having skill in the art to modify the wafer holder of Lewis et al and Chao et al with a charge sensor having an arm as taught by Rose et al. in order to monitor the charge build-up on the surface of the wafer (Rose et al., col. 2, lines 59-68).

Regarding to claims 20, 23, Lewis et al disclose a method comprises providing a target device (19), performing drying process (col. 7, lines 57-58). Lewis does not disclose a sensor monitoring a static charge on the surface of the wafer and a corrective action. Rose et al. disclose a sensor (30) (shown in fig. 1) sensing static charge on the

Art Unit: 2836

surface of the wafer 12 and control system (50) correcting action. It would have been obvious to one having skill in the art to modify the wafer holder of Lewis et al. with a charge sensor and control system as taught by Rose et al. in order to monitor the charge build-up on the surface of the wafer (Rose et al., col. 2, lines 59-68).

Regarding to claims 4, 7, 8, and 14, the combination of Lewis et al. Chao et al and Rose et al. disclose the antistatic solution comprises a rinsing solution which use distilled water and acid, but, the combinations do not disclose the antistatic solution comprises a distilled water and a material as claimed. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to substitute the antistatic solution of the combinations to any known material as long as it compatible with the requirements of other elements in the circuit in order to properly protect the surface of wafer from static. It has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Allowable Subject Matter

4. Claims 29-30 are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

Claim 29 recites a method of fabricating a semiconductor device comprises the steps of controlling static charge on the wafer using an electrostatic discharge controller while drying the wafer and measuring critical dimensions of the wafer using electron microscope.

The references of record do not teach or suggest the aforementioned limitation, nor would it be obvious to modify those references to include such limitation.

5. Claims 12, 13, 16, 21, 22 and 24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

Claims 21 recites a method comprises the corrective action further comprises the steps of setting a flow rate and composition for antistatic solution, dispensing the solution according to the flow rate and the composition while continuing to monitor static charge on the surface of the target device, adjusting the flow rate and the composition based on the monitored static charge, and halting dispensing of the solution when the monitored static charge falling below and acceptable level.

Claims 12 and 16 recite the electrostatic discharge monitor and control system further comprises a plurality of individual sensors and the first solution is stronger with respect to reducing static charge the second solution.

The references of record do not teach or suggest the aforementioned limitation, nor would it be obvious to modify those references to include such limitation.

Conclusion

Art Unit: 2836

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Danny Nguyen whose telephone number is (703)-305-5988. The examiner can normally be reached on Mon to Fri 8:00 AM to 4:30 PM.

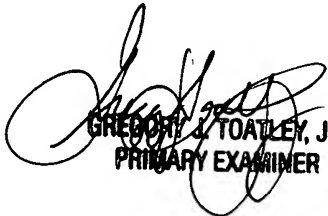
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Sircus can be reached on (703)-308-3119. The fax phone numbers for the organization where this application or proceeding is assigned are (703)-872-9318 for regular communications and (703)-872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)-308-0956.

DN

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July 11, 2003


GREGORY J. TOATLEY, JR.
PRIMARY EXAMINER